



Microsoft®

**Windows.net™**

Server Family

# **Real Time Communications (RTC) Introduction**

**Jonathan Christensen  
Group Program Manager  
Windows Division  
Microsoft Corporation**

# **What is RTC?**

- **Enterprise Instant Messaging (IM)**
  - **Secure, managed**
- **With multimodal capabilities**
  - **IM, Voice, Video, Data Sharing**
- **Cross Enterprise “federated” IM**
  - **Presence and IM with extranet partners**

# A Secure, Managed Solution

- Traffic stays local
  - Intranet solution
- Encrypted sessions
- Standards based for interoperability
- Works like email
  - Add any buddy with their alias -- (i.e. joe@company.com)





# **Instant Messaging**

- **Nearly 150 million users worldwide**
  - **Still growing rapidly**
- **Not just for teenagers**
  - **Type “A” companies using IM to accelerate business processes**
- **Presence is the stimulus**
- **The new endpoint for real-time notifications**
- **IM is the lowest common denominator for rich communications scenarios**
  - **Works over any network (even dial-up)**
  - **Even the Firewall is no problem**
  - **Quiet/private**

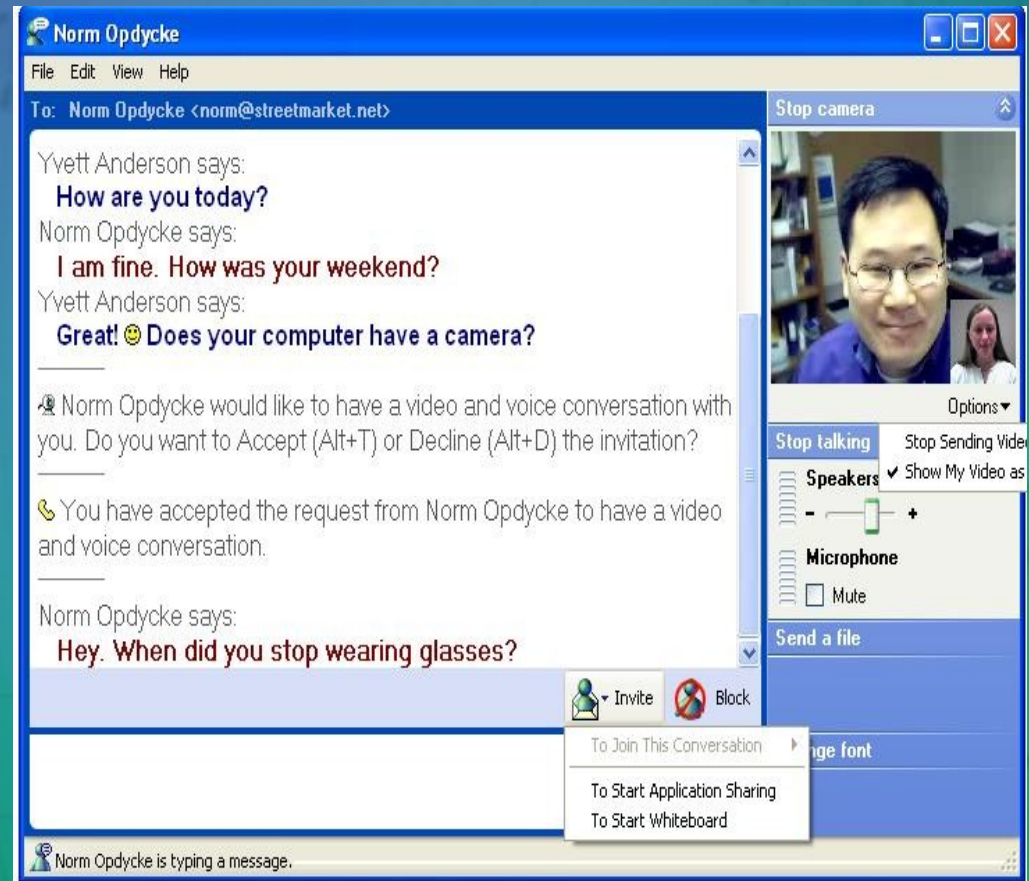
# **RTC - Client and Server**

- **Windows Messenger - the RTC Multimedia Endpoint**
  - **Where sessions begin/end**
  - **Sets the media quality benchmark**
    - **AEC, Jitter Management, Low Latency**
  - **The best development platform**
- **RTC Server - “router”**
  - **This is the intelligent hub**
  - **Authentication**
  - **Roaming features**
  - **Directory integration**
  - **Federation**

# Windows Messenger

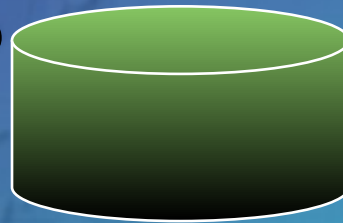
## Integrated user experience

- Presence
- Voice
- Video
- Instant Messaging
- Application Sharing
- White Board
- File Transfer
- Notification
- Contacts
- Remote Assistance integration



# RTC Infrastructure Components

Archiving



Secure and searchable, knowledge retention, regulatory compliance, user search, policy management

Directory



Applications

RTC

Detect the right device at the right time

Find a user, check presence, engage

SIP Network



Robust multimedia capabilities for any session type



# High-Level User Features

## • Presence Enabled Multi-Modal Communications

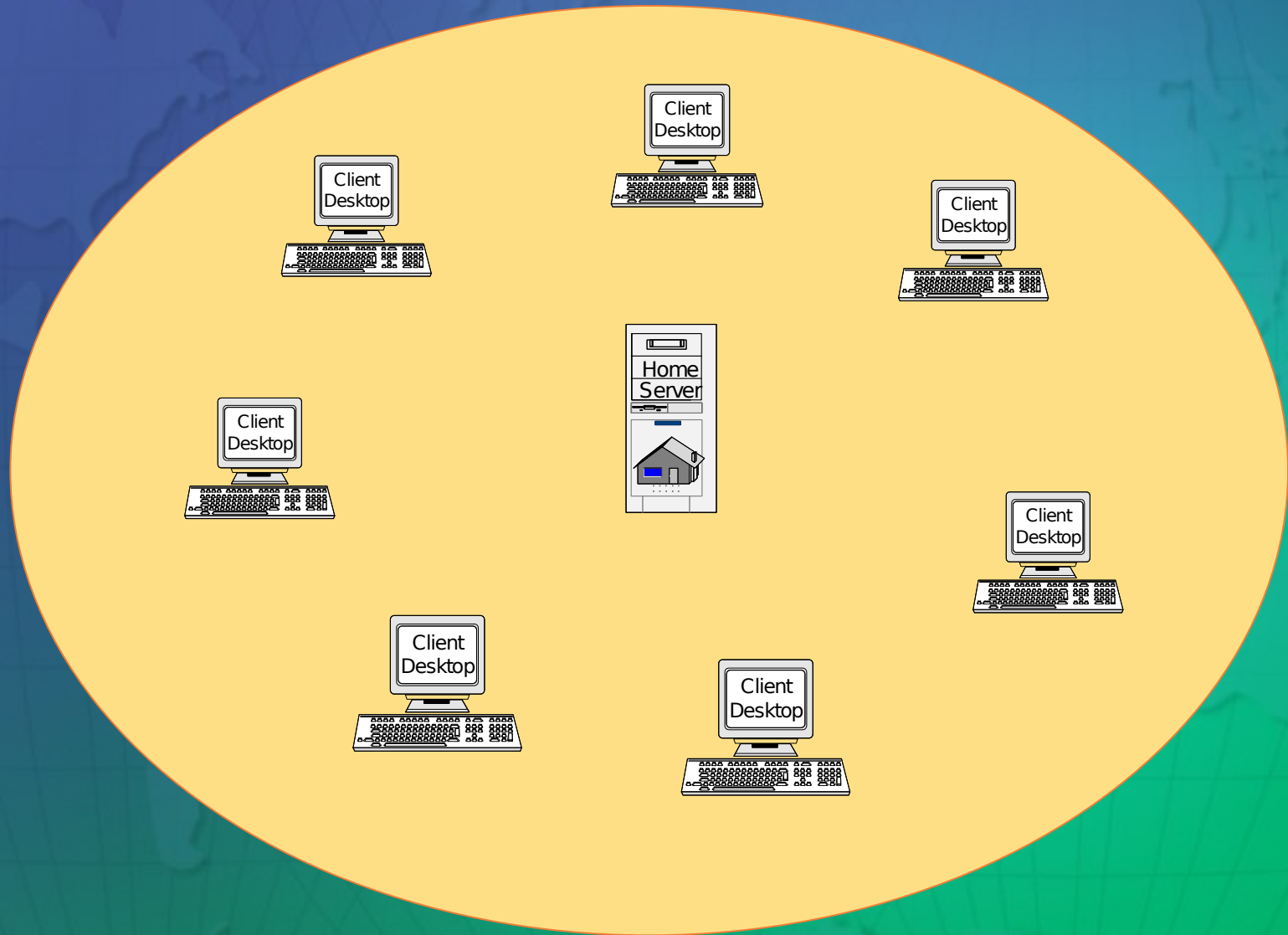
- Low latency audio
- Integrated desktop video
- Application sharing
- Roaming features (log in from any PC)
- Telephony (call to/from a PC)
- Directory search and “ad-hoc presence”

# **High-Level Admin Features**

- **Automated policy and provisioning**
- **Multiple authentication mechanisms**
  - **NTLM, Kerberos, Digest**
- **Directory integration**
- **Scriptable management interfaces**
- **Scaleable and Available**
  - **High throughput**
  - **Redundant**

# Deployment Topologies

# Single-Site Topology





# Simple Topology

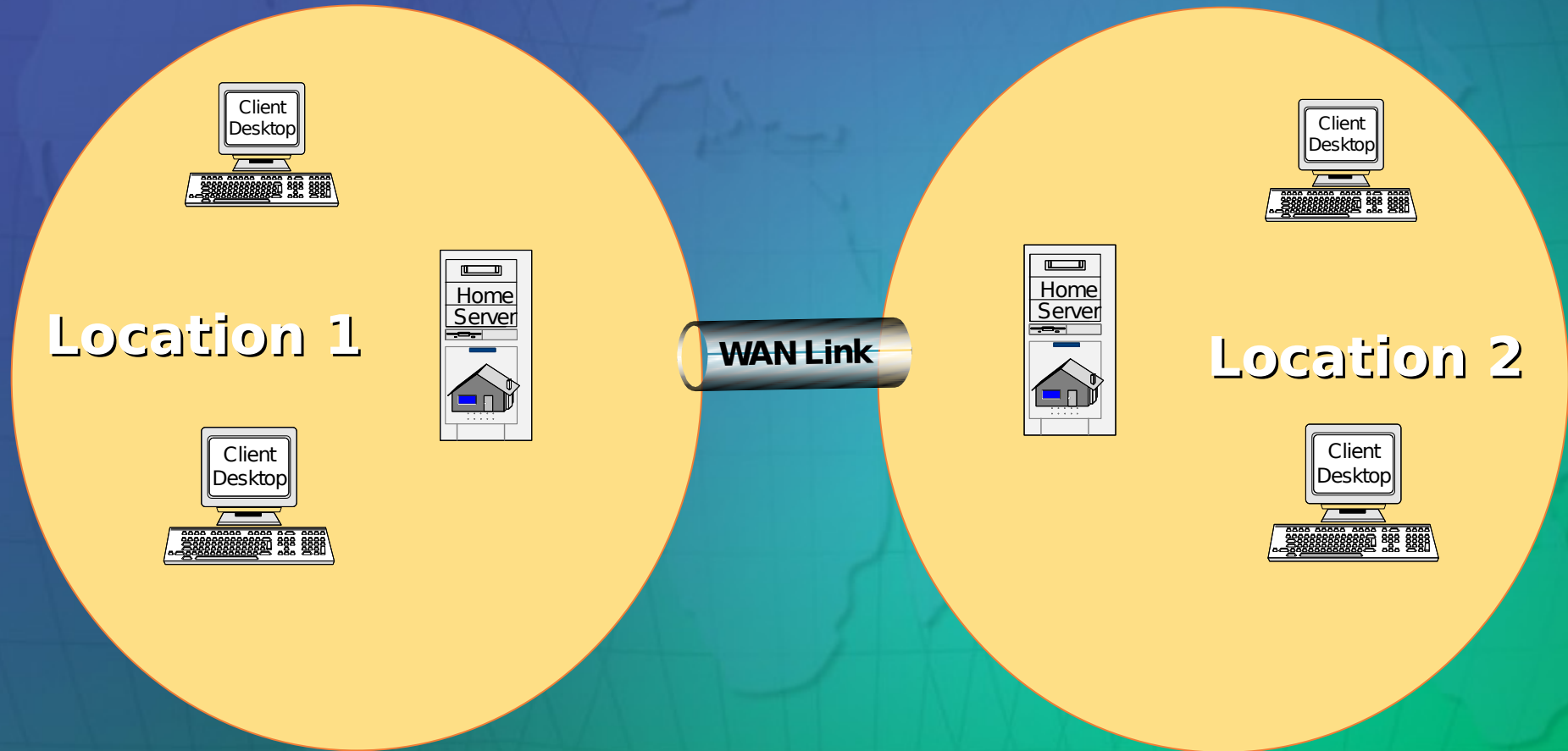
- **Single site - Single Server**
- **Add Servers**
  - For additional scale
  - Introduce special “Server Roles”



# Single Site Topology

- **One or More Servers**
- **Published in DNS for ease of discovery**
- **Users can be searched from the directory**
- **Policies can be applied**
- **User Data is roamed across multiple PCs**

# Multi-Site Topology

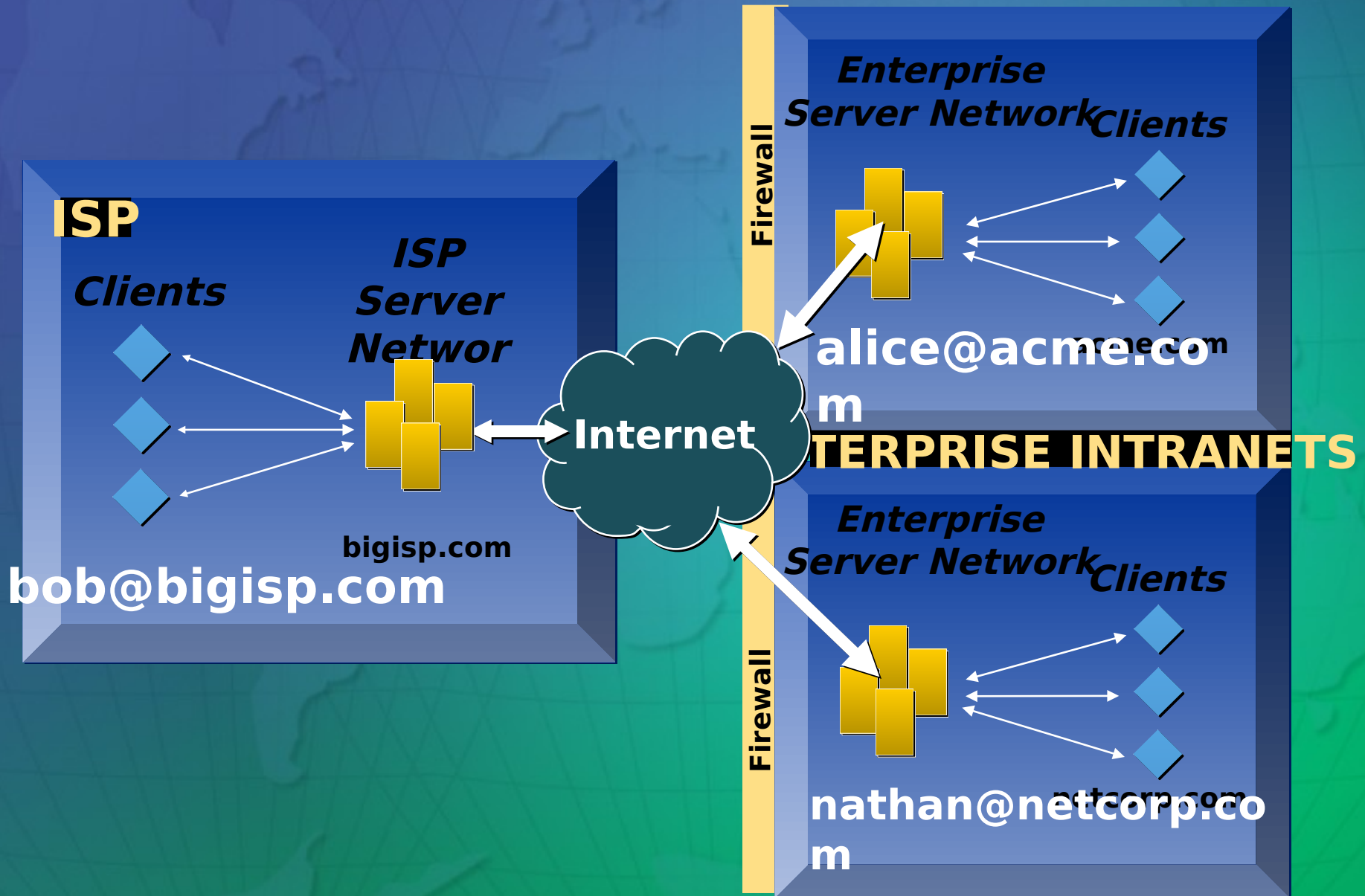


# **Multi-Site Topology**

- **Each Site has a RTC deployment similar to Single Site deployment**
- **The Sites are connected to each other over a WAN link**
- **Routing for internal users is done using the Load Distribution information in the AD**
- **Routing for external users is done using a combination of static Routes and DNS Routing**



# RTC Federation



# RTC Federation

- Federation for **IM and Presence** between corporations supported
  - Works with standard Internet mechanisms
  - Analogous to Email (SMTP)
- Locked Down Federation using secure channels between Edge Servers
  - Required prior knowledge of federating corporations
- Open Federation using TLS based encrypted channels

# Server Roles

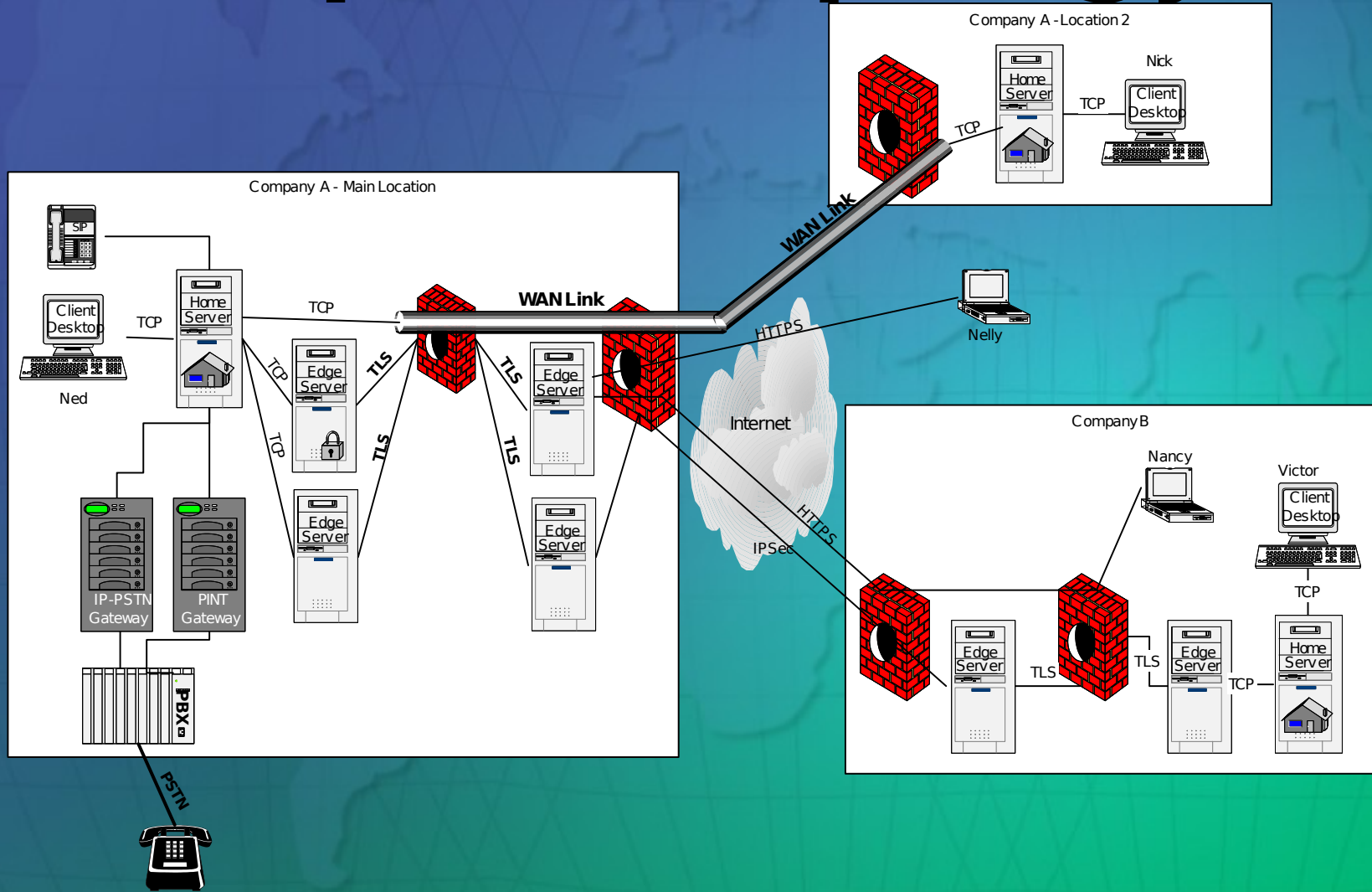
- **RTC Home Server**
  - Each user is assigned to a RTC Home Server in the Active Directory
  - Acts as Registrar, Presence Agent Server, and Outbound proxy for the user
  - Maintains subscriptions and registrations for the user
- **Load Distributor**
  - Distributes a request to the right RTC Home Server
  - All Home Servers are Load

# Server Roles (cont'd)

- **Edge Server**
  - **Two Types: Internal and External**
  - **Internal Edge Server is a load distributor and enforces authentication for external clients**
  - **External Edge server is a base SIP proxy used for routing and is located in DMZ**



# Complete Topology



A faint, stylized world map is visible in the background, rendered in a light blue/green color. The map shows the outlines of continents and is overlaid with a grid of latitude and longitude lines. The background has a vertical gradient from blue at the top to green at the bottom.

# **Configuration**

# **Configuration Steps**

- **User Management**
  - **Enable/Disable users for using RTC**
  - **Assign SIP addresses**
  - **Assign the user to a RTC Home Server**
- **Manage Global settings**
  - **Registrar: Domains supported, Timeouts**
  - **Client: Version Information etc**
  - **User Search: Guest Account**

# **Configuration Steps (cont'd)**

- **Manage Policies using GPO**
  - **Allow/Block list for Presence, Calls**
  - **Client Policy: Allow/Deny Audio/video, Application sharing**
  - **Bandwidth control on the client**
  - **Policy Expiration Time**
- **Policies are read by the server in GPO and sent to the client using In-band provisioning mechanism**
- **Allows for provisioning of client that are outside the domain (ASP scenarios)**



# **Configuration Steps (cont'd)**

**Manage each server's specific settings**

- **SIP Stack settings**

- **Transport to be used (TCP, UDP, TLS)**
- **Listening Addresses and Ports**

- **Authentication**

- **Choose Types of Authentication mechanisms to be enabled**
- **Enable Proxy and/or Registrar Authentication**

- **Routing**

- **Configure Static Routes: Next Hop of the message based on a number of**

# Telephony Integration

- **PC to Phone calls using IP-PSTN Gateways**
- **Phone to Phone calls using PINT servers**
- **SIP Phones can register with the RTC server and act as another endpoint for the user**
- **Interop testing with Gateways and SIP Phones from major vendors**
  - **Gateways: Cisco, Nuera, Vegastream, 3Com**
  - **Phones: Cisco, Polycom, Siemens, 3Com**

# Questions?

# Resources

- <http://www.microsoft.com/rtc>  
(RTC Public site)
- <http://www.betaplace.com>  
(JDP/Design Review)



# ***Microsoft®***